

AUG - 5 2002 TECHNOLOGY CENTER R3700



Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

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Buce Telman
Commissioner of Patents and Trademarks

Ollie M. Person







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United States Patent [19]

Yudanov et al.

[11] Patent Number:

5,785,021

Date of Patent:

Jul. 28, 1998

[54]	ELECTRO	LICALLY ACTUATED DNIC FUEL INJECTION SYSTEM
[75]	Inventors:	Sergi Yudanov, Croydon Park; William Richard Mitchell, Sylvania Waters, both of Australia
[73]	Assignee:	Sergi Yudanov and Invent Engineering Pty Ltd, Australia
[21]	Appl. No.	693,138
	PCT Filed	
	PCT No.:	
		te: Nov. 12, 1996
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Į.		. Date: Aug. 17, 1995
[30	ı For	eign Application Priority Data
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D	ec. 21, 1994	F02M 37/04
[5:	2] U.S. CI	123/676, 481, 123/446, 198 D, 447
[5	8] Field o	123/446, 198 D, 447

[56	3	U.S. PATENT DOCUMENTS				
	'J					
	4,971,010 4,986,232	11/1990 1/1991	IwataRichter	123/446		
	5,143,291 5,325,834 5,375,596	7/1994	Ballheimer	123/446		
	5,413,076 5,651,345	5/1995	Koenigswieser			

References Cited

5,651,345 FOREIGN PATENT DOCUMENTS

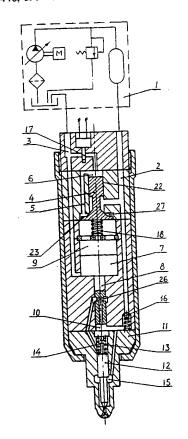
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Primary Examiner-Carl S. Miller Attorney, Agent, or Firm-Gifford, Krass, Groh, Sprinkle, Patmore, Anderson & Citkowski, P.C.

ABSTRACT [57]

A hydraulically actuated electronically controlled unit injection system comprises a pressure intensifier associated with a hydraulically controlled differential valve (HDV) having a poppet valve opening into a working chamber of the pressure intensifier wherein there is a throttling slot between the poppet valve chamber and the working chamber with either at least a bypass channel between the poppet valve chamber and the working chamber or a bore connecting the working chamber to a control chamber of the HDV.

15 Claims, 8 Drawing Sheets



ARTIFACT SHEET

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